

Functionize Improves QA Efficiency by 600%

Overview

TOTVS is the largest enterprise software house in Latin America. One of their key technologies is their Machine Learning platform, Carol, which is developed by TOTVS Labs in Silicon Valley. Carol is used in many of their new products. Effective testing of Carol is therefore vital.

Key Challenges:

- TOTVS Labs had been using hand-written Selenium scripts for their automated testing, creating a high degree of technical debt and using up 50% of QA time.
- QA regularly had to call on both backend engineers and DevOps engineers to solve issues, thus impacting on the whole team.

Solution:

- TOTVS Labs now use the Functionize Modeler for test creation, taking test creation from hours down to minutes.
- Functionize's AEA™ engine includes Root Cause Analysis which has allowed them to reduce maintenance time dramatically.

Outcomes:

- Using Functionize has allowed TOTVS Labs to more than double the number of tests in their suite, meaning there is less need for manual testing.
- TOTVS Labs have seen **dramatic** improvements in efficiency, up to 6-fold when you include the reduced impact on the backend team!



“Before Functionize, our Quality Engineers had to rely on our DevOps and back-end engineers to perform their work. Now with Functionize, they can not only serve more engineers and cover more parts of the product, but they can also perform their job without the help of other teams.”

– Vicente Goetten,
Executive Director

Background

TOTVS is the biggest enterprise software house in Latin America, employing some 8,000 staff, 2,000 of who are engineers. TOTVS is split into 10 business sectors including services, manufacturing, and retail. They specialize in identifying and solving issues that affect multiple customers. Among their more successful products is Fluig – a collaboration and productivity platform.

TOTVS was established more than 30 years ago, and now has offices in over 40 countries, including 11 R&D units. In 2012, TOTVS set up the TOTVS Labs in Mountain View. The Labs are tasked with working on cutting-edge technology that can be fed into the rest of the business. They currently employ around 30 engineers, data scientists and designers split between the main office in Mountain View and Brazil.

One of the most successful outputs of the labs is Carol – a Data and Machine Learning Platform. Carol encompasses multiple aspects of Machine Learning including the capability to predict and forecast, make recommendations, offer an interface with users with Natural Language Processing and the ability to recognize people and things with computer vision. Carol has been in development for the last 3 years and is now used in multiple TOTVS products for different industries such as Retail, Education, Manufacturing, Agriculture, and Healthcare.

The Problem

Clearly, a complex system such as Carol requires extensive QA testing. During the early stages, testing was handled by a small team at TOTVS Labs. The QA team used handwritten Selenium scripts running on a local server for testing the UI elements, coupled with [SoapUI](#) for API testing. Testing was run and managed using Jenkins.

Using this approach, they were able to create around 100 automated tests for the system. However, each test would take many hours to develop, and test maintenance was eating up half his time. Moreover, very often issues came up that required the QA team to call in the backend and DevOps engineers to maintain the testing servers. This meant testing was starting to have a negative impact on the productivity of the whole team.

Failed Solutions

Carol was developing and growing rapidly, meaning the QA team was under pressure to create more and more tests. As a result, TOTVS Labs started to look for alternative solutions. Initially, they tried using [Sauce Labs](#) to run all the tests. But as Wilson Souza, TOTVS Labs lead QA says “Sauce Labs was costing money but wasn’t giving much measurable advantage.” So, Wilson then tried using an open source NLP interface for running Selenium scripts. The underlying scripts were still created by hand, but the NLP engine then allowed the scripts to be assembled into tests using NLP. While this improved productivity a little, the underlying scripts still needed extensive maintenance, and the open source platform wasn’t very stable.

Profile:

TOTVS is the largest enterprise software house in Latin America.

Challenge:

Existing Selenium framework was consuming 50% of QA time.

Solution:

Functionize’s AI-cloud platform enables rapid test creation with little maintenance.

Benefits:

Improves QA efficiency by 600%.

“Using Functionize I was able to create new tests in minutes instead of hours”, said Wilson, TOTVS Labs lead QA Engineer.”

– Wilson, TOTVS Labs lead QA Engineer



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How Functionize Helped

TOTVS Labs started using Functionize in early in 2017. Having been introduced to the system, TOTVS Labs QA team was immediately impressed by how easy it was to create tests using our autonomous test modeler.

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TOTVS Labs QA team is also amazed by how easy maintenance is with Functionize. By their estimate, test maintenance is now taking only 20% of their time. Functionize tests use the AEA™ (Adaptive Event Analysis) engine to reduce test maintenance. This includes self-healing tests where every test selector is fingerprinted so tests will automatically deal with UI and style-sheet changes. Root Cause Analysis identifies the likely root cause of any given failure and lists these for you. 1 Click Updates allow you to select the most likely solution and update it with a single mouse click.

So, what has been the upshot of all this? Well, because test maintenance no longer takes half their time, the QA team has been able to spend more time developing new tests. Coupled with the ease of rapidly creating scriptless tests, this has allowed TOTVS Labs to more than double the total test suite. TOTVS Labs has been able to increase the test coverage without having to increase the QA team for the project.

This has amazed Vicente Goetten, Executive Director of the TOTVS Labs. Not only has the QA team managed to remain productive on their own, but perhaps most strikingly, Functionize has been able to completely remove QA's reliance on help from the backend team. As Vicente puts it:

"Without Functionize, we would have had to grow our test team significantly, and also the team who supports QA. When you combine this with the reduced impact on the development team as a whole, this marks at least 5-6 fold increase in efficiency."

In the last month, TOTVS Labs has increased the QA team to concentrate on testing specific applications developed on top of Carol. Even here Wilson has seen the benefits of Functionize, commenting on how easy the training process has been. After only a couple of weeks in the role, he is already generating useful tests.

What's Next

When we spoke with Wilson he was looking forward to trying out Functionize's [ALP](#) (Adaptive Language Processing) test creation. This uses natural language processing to allow you to write test scripts in plain English and have them automatically converted into Functionize scripts. Now that Wilson has another team member he will have time to try this out. From the experience of our other customers, we are sure he will see an even greater improvement in efficiency and speed of test creation.

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In the longer term, both Wilson and Vicente were excited to hear that we are introducing mobile web testing early in the New Year. But they were even more excited to hear that we have plans to introduce native mobile testing in Q2 next year. They were also intrigued to learn more about our intelligent canary testing approach, which Tamas Cser (the Functionize CEO) presented in October. This promises to revolutionize how improvements to web apps such as Carol are delivered to the users.



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